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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

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Jawaharlal Nehru

“Step Out From the Old to the New”

IS 5143 (1988): Adjustable Axillary Crutches [MHD 10:
Medical Laboratory Instruments]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

(Reaffirmed 1998)

SPECIFICATION FOR ADJUSTABLE AXILLARY CRUTCHES

(Second Revision)

1. Scope — Specifies functional and dimensional requirements of adjustable axillary wooden or aluminium crutches.

2. Materials

2.1 Wood — The wooden crutches shall be made from the species of timber suitable for the purpose intended. A list of timber species is given in Appendix A for guidance.

2.2 Aluminium — The aluminium crutches shall be made from standard aluminium alloy sections. The selection of particular section shall meet the test requirements.

2.3 Mild Steel — The metallic components of the wooden crutches shall be manufactured from any suitable mild steel.

2.4 Leather Cloth — The arm piece shall have a covering of good quality leather cloth on twill backing [see also Grade 3 of IS : 1259-1984 Specification for vinyl coated fabrics (*third revision*)].

2.5 Foam Rubber — The padding for the arm piece shall be of a good quality foam rubber (see IS : 1741-1960 Specification for latex foam rubber products).

3. Shape and Dimensions — The general shape and dimensions of the crutches shall be as given in Fig. 1 read with Table 1 or as given in Fig. 2 read with Table 2.

4. Workmanship and Finish

4.1 The surfaces of the crutch shall be smooth and the edges shall be even and rounded. The corresponding holes on either bow shall be situated at the same distance from one end of the crutch and shall be equally spaced. The holes on the legs shall be equally spaced. The wooden components of the crutch shall be given a protective coat of a good grade of clear or pale coloured transparent varnish or both. The varnish shall be applied before the crutch is assembled. The varnished surface shall be smooth, uniform and hard and shall be free from bubbles and tackiness. The varnished surface shall not peel off. The mild steel components shall be chromium plated over nickel in accordance with service Grade 2 of IS : 1068-1985 'Specification for electroplated coatings of nickel plus chromium and copper plus nickel plus chromium on iron and steel (*second revision*)'.

4.2 Side bars of the aluminium crutches may be anodized as for Grade AC 10 of IS : 1868-1982 'Specification for anodic coatings on aluminium and its alloy (*second revision*)'.

5. Tests

5.1 Strength Test — The strength of the crutches shall be tested as given in 5.1.1 to 5.1.3.

5.1.1 The crutch shall be suitably supported at 60 degree to the horizontal as given in Fig. 3 (a) with the foot extended to its maximum length and the hand piece in the second hole from the arm piece end. A load as given below shall be suspended from the centre of the hand piece. The deflection shall not exceed the values indicated below:

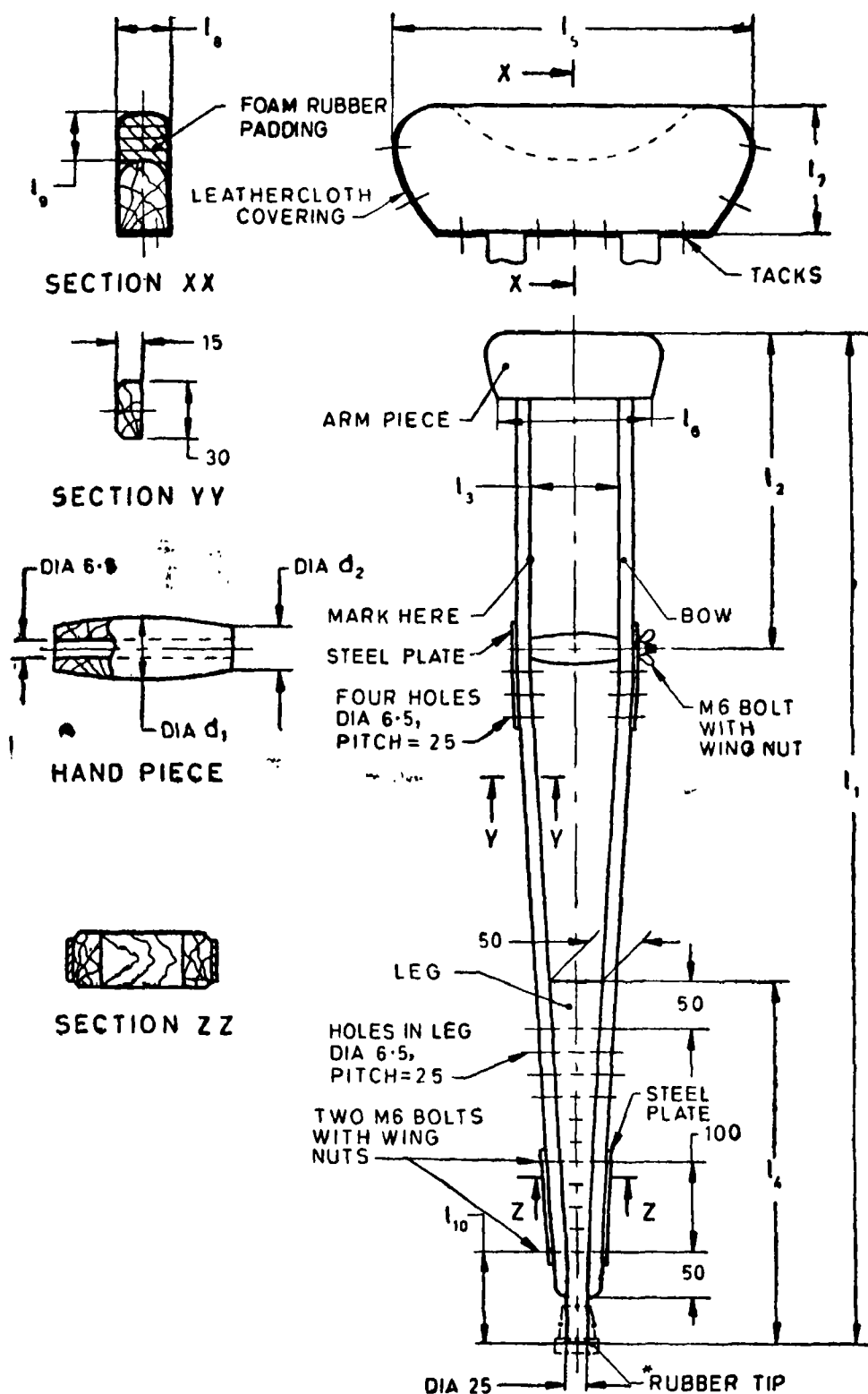
Size	Load	Permissible Deflection at the Centre, Max mm
	N	
1 and 2	500	30
3, 4 and 5	700	50

Adopted 22 August 1988

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Gr 3

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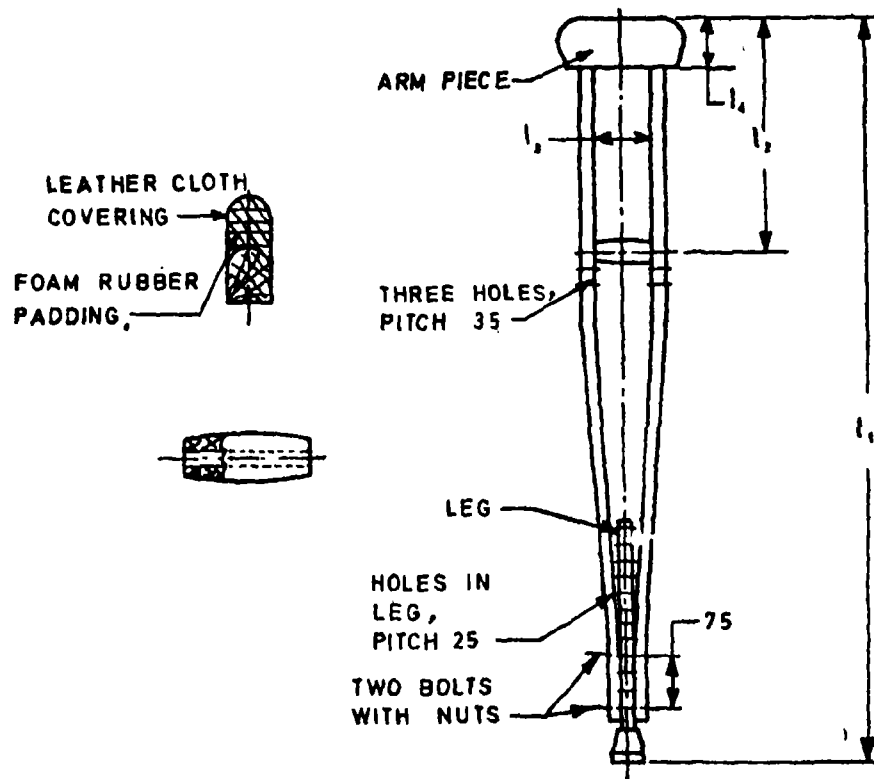
*See IS : 5150-1969 'Rubber tips for crutches and walking sticks'.
All dimensions in millimetres.

FIG. 1 ADJUSTABLE AXILLARY CRUTCH

5.1.2 With crutch in the same position as in 5.1.1, the load as given below shall be lifted to height of 50 mm [see Fig. 3 (b)] and dropped:

Size	Load N
1 and 2	500
3, 4 and 5	700

No damage shall be noticed.



All dimensions in millimetres.

FIG. 2 ADJUSTABLE AXILLARY CRUTCH, ALTERNATE DESIGN

TABLE 1 DIMENSIONS OF CRUTCHES

(Clause 3 and Fig. 1)

All dimensions in millimetres.

Size No.	l_1		l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	d_1	d_2
	Fully With-drawn	Fully Extended											
1	600	775	150	75	300	150	120	60	35	30	100	25	20
2	775	950	300	75	300	150	120	60	35	30	100	25	20
3	950	1 125	325	75	400	150	120	60	35	30	100	25	20
4	1 125	1 300	350	100	400	200	150	70	35	30	100	35	25
5	1 300	1 475	425	100	400	200	150	70	35	30	100	35	25

TABLE 2 ALTERNATE DIMENSIONS OF CRUTCHES

(Clause 3 and Fig. 2)

All dimensions in millimetres.

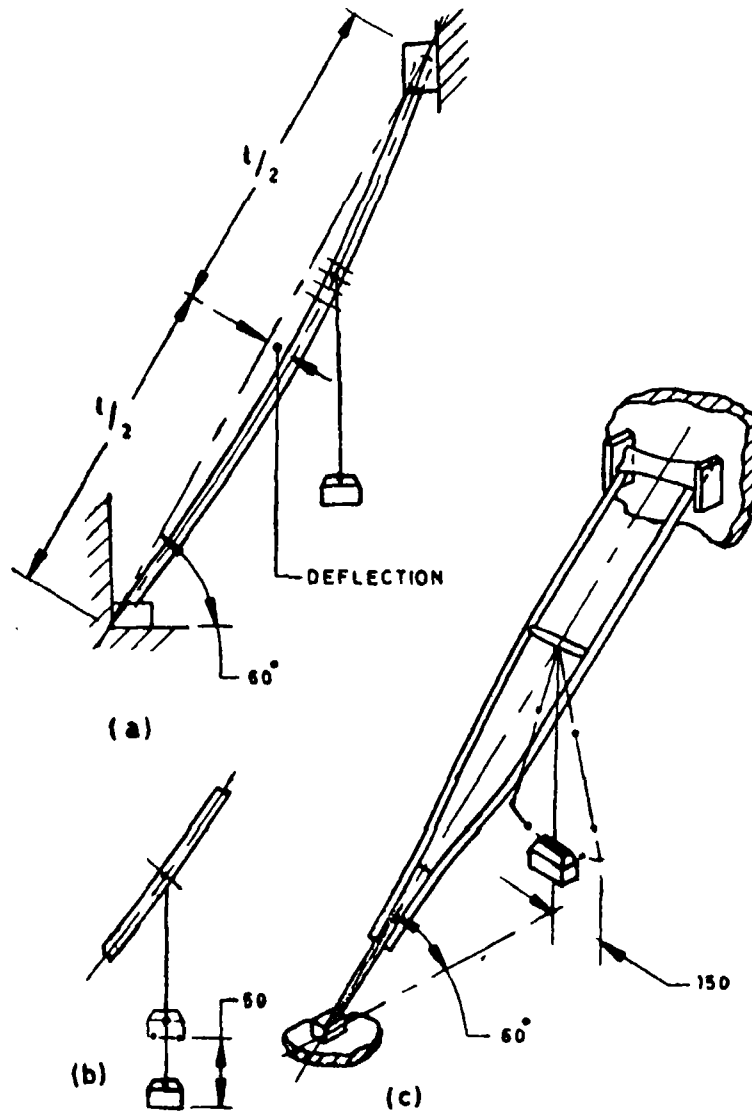
Size No.	l_1		l_2	l_3	l_4
	Fully Withdrawn	Fully Extended			
1	600	800	200	80	55
2	825	1 025	275	80	55
3	1 050	1 250	350	100	80
4	1 275	1 475	425	100	80

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5.1.3 With the crutch in the same position as in 5.1.1, a load as indicated below shall be suspended from the hand piece:

<i>Size</i>	<i>Load Suspended N</i>	<i>Suspensions below the Top of the Hand Piece mm</i>
1 and 2	500	300
3, 4 and 5	700	500

The weight shall be drawn out by 150 mm as given in Fig. 3 (c) and allowed to swing freely till rest. The crutch shall not show any sign of damage after the test.



All dimensions in millimetres.

FIG. 3 STRENGTH TEST ON CRUTCHES

5.2 Drop Test — Each assembled crutch shall be dropped three times from a height of 1.5 m with the axis of the crutch horizontal on a hard floor. The crutch shall not break, crack or assume a new set at the end of the test.

6. Marking — Each crutch shall be legibly marked on the inside of one of the arms above the hand piece with size and manufacturer's name, initials or recognized trade-mark.

6.1 Standard Marking — Details available with the Bureau of Indian Standards.

7. Packing — The crutches shall be packed as agreed to between the purchaser and the supplier.

APPENDIX A

(Clause 2.1)

SPECIES OF TIMBER FOR ADJUSTABLE AXILLARY CRUTCHES

A-1. Species — The wood for crutches may be of one of the species listed below [see also IS : 399-1963 'Classification of commercial timbers and their zonal distribution (revised)'].

<i>Standard Trade Name</i>	<i>Local Name</i>	<i>Botanical Name</i>
Ash	hum (Kash), sun (Pun)	<i>Fraxinus</i> sp
Bola	bhola (Asm), kimbu (Ban and Nep)	<i>Morus laevigata</i> Wall
Dhaman	phalsa (Pun), gonver (Kol), dadsal, thadsal (Guj, Mar and Kan)	<i>Grewia</i> sp
Mulberry	Shahtut (Hin and Pun), tut (Pun)	<i>Morus</i> sp
Padauk	Padauk (And)	<i>Pterocarpus delbergioides</i> Roxb.
Red cedar	—	—
Sandan	bandhan, pandhan (Hin), ruta (Kol) Panan, sandan, tinnas, tinsa (Hin) sannan (Pun), tiwas (MP), telus (Dangs) tanach (Guj), Karimuttal (Kan), tewas (Mar)	<i>Ougeinia oojeinensis</i> (Roxb.) Hochreut
Silver Oak	—	<i>Grevillea robusta</i> A. Cunn.
Sissoo	Shisham (Hin), talhi (Pun)	<i>Dalbergia sissoo</i> Roxb.
White cedar	Billdevdari (Kan), Vella-gil	<i>Dysoxylum malabaricum</i> Bedd
Neem Chameli	Jalneem	<i>Milling-Tonia Hostensis</i>
Indian Oak	Indian Oak	<i>Quereus</i> spp.

EXPLANATORY NOTE

This Indian standard was first issued in 1969 and subsequently revised in 1982. In this second revision of the standard, the main changes are the inclusion of an alternate design of the crutch and the provision for use of aluminium alloy for the manufacture of the crutches.

AMENDMENT NO. 1 MARCH 1993
TO
IS 5143 : 1988 SPECIFICATION FOR ADJUSTABLE
AXILLARY CRUTCHES

(Second Revision)

(Page 3, Table 1) — Substitute the following for the existing headings:

‘Size $l_1 \pm 10$ $l_2 \pm 5$ $l_3 \pm 5$ $l_4 \pm 5$ $l_5 \pm 5$ $l_6 \pm 5$ $l_7 \pm 5$ $l_8 \pm 2$ $l_9 \pm 2$
No. $l_{10} \pm 5$ $d_1 \pm 2$ $d_2 \pm 2$ ’

(Page 3, Table 2) — Substitute the following for the existing headings:

Size $l_1 \pm 10$ $l_2 \pm 5$ $l_3 \pm 5$ $l_4 \pm 5$ ’
No.

(MHD 10)

Reprography Unit, BIS, New Delhi, India

**AMENDMENT NO. 2 SEPTEMBER 1994
TO
IS 5143 : 1988 SPECIFICATION FOR
ADJUSTABLE AXILLARY CRUTCHES**

(Second Revision)

(Page 1, clause 4.1, fourth sentence) — Add a new sentence after this sentence as follows:

‘Painting shall be permitted as an alternate protective coating.’

(Page 3, Fig. 2) — Substitute ‘FOUR HOLES, PITCH 25’ for ‘THREE HOLES, PITCH 35’.

(MHD 10)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 JANUARY 2000
TO
IS 5143 : 1988 SPECIFICATION FOR ADJUSTABLE
AXILLARY CRUTCHES
(Second Revision)

(Page 1, clause 4.1, last sentence) — Substitute the following for the existing sentence:

“The mild steel component shall be chromium plated over nickel in accordance with service Grade 0 of IS 1068 : 1993 'Specification for electroplated coatings of nickel plus chromium and copper plus nickel plus chromium (*third revision*)'.”

(Page 5, Appendix A, clause A-1) — Insert the following Species of wood in the end of the table:

<i>Standard Trade Name</i>	<i>Local Name</i>	<i>Botanical Name</i>
Poplar	chalun (HP) Bahan phalash (Pun) chalan (Sirmur)	<i>Populus</i> Spp.
Bonsum	Angari (Nep)	<i>Phoebe</i> Spp.
Willow	—	<i>Salix</i> Spp.

(MHD 10)